CHAP. XI.

OF CONSTRUCTING AQUEDUCTS.

HAVING exhibited the mode of paſſing the boats to and from the different ponds of canal, and ſhewn the great difference in expence between the method deſcribed, and locks; the next conſideration of the moſt importance, in proſecuting navigations, is the expence of conſtructing AQUEDUCTS.

In ſeeking to extend the benefit of water-carriage, and paſs to certain towns or diſtricts by the neareſt rout, wide and deep valleys will frequently preſent their extenſive chaſms, and ſeem to exclude connection; which, on the lock principle, would, in numerous inſtances, be the caſe; for if I ſuppoſe a valley two hundred feet deep, and ſix hundred yards wide, what country could produce a trade to pay for an aqueduct in ſuch a ſituation? That there are an infinite number of ſimilar ſituations, where it would be deſirable to paſs in order to open a near communication, I conceive no one will deny; and in ſuch a ſituation, 200,000l. would not pay the expence of an aqueduct. To lock down and up would be almoſt equally difficult, conſidering waſte of water and loſs of time; and, if practicable, to go by a circuitous rout, the diſtance might to be ſo great as raiſe the material to the expence of land-carriage: conſequently, the happy effect of a water intercourſe between ſuch diſtricts, could never be experienced on the lock ſyſtem. But, to ſurmount theſe difficulties, and open an eaſy communication, ſee Plate VI. repreſenting the CONJUNCTION.

This is ſimply two ſingle inclined planes in conjunction, expanding from hill to hill, and binding the two countries in the bonds of reciprocity.

Each plane extending down the ſide of the hill, they are united at bottom by a double plane, in the form of a long oval, on which the boats paſs each other. *See the Ground Plan.* On the ends of the oval, there are guides working on a bolt, which move from ſide to ſide of the plane alternately, as the boats paſs, which prevents the two boats ever landing on one plane, or interrupting the paſſage of each other.

In this the operation at top is exactly the ſame as the ſingle inclined plane; but at bottom a man is placed where the boats are to paſs; and on each engine letting down a boat, the man at bottom removes the chain from one boat to the other, and giving the ſignal to the men above, each draws up his opponent's boat; thus they are transferred acroſs the valley to the different ponds of canal.

In performing the operation on the ſingle plane, ſix minutes is allowed to paſs two boats, one down and one up; in doing this, the time will not be much more; for each man at top working at the ſame time the ſame operation, the two boats will be moving down the planes towards the centre at the ſame time, where the man can transfer the chains in nearly the ſame time that he could hook a boat; but as they may not all work regularly at the ſame time, I will allow eight minutes to each operation, amounting to one ton per minute, or ſeven hundred and twenty in twelve hours, or one thouſand four hundred and forty in twenty-four hours; a quantity ſufficient to ſhew, that if each

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